

**TOP SECRET**

FILTER DESIGNA- TION	DESCRIPTION	NOMINAL SPECTRAL TRANSMISSION (50% T p+ (s) )	NOMINAL FILTER FACTOR WITH 3404	NEAREST WRATTEN EQUIVALENT	AXIS OF POLARIZATION**
SF01	Long Wave Pass Orange	550	1.8	W/21	N/A
SF02	Long Wave Pass Orange-Red	580	2.3	W/23A	N/A
SF03	Long Wave Pass Red	600	2.5	W/25	N/A
SF04	Visual Band Pass Orange	570-680	3.1	None	N/A
SF05	Visual Band Pass Green	490-600	2.8	W/57	N/A
SF06	Long Wave Pass Yellow	530*	N/A***	W/15 + 1.0ND	N/A
SF07	Polarizer	Neutral	3.0	0.45 ND	0°
SF08	Polarizer	Neutral	3.0	0.45 ND	10°
SF09	Polarizer	Neutral	3.0	0.45 ND	20°

\* - Actually 5% transmission as the base transmission will be 10%.

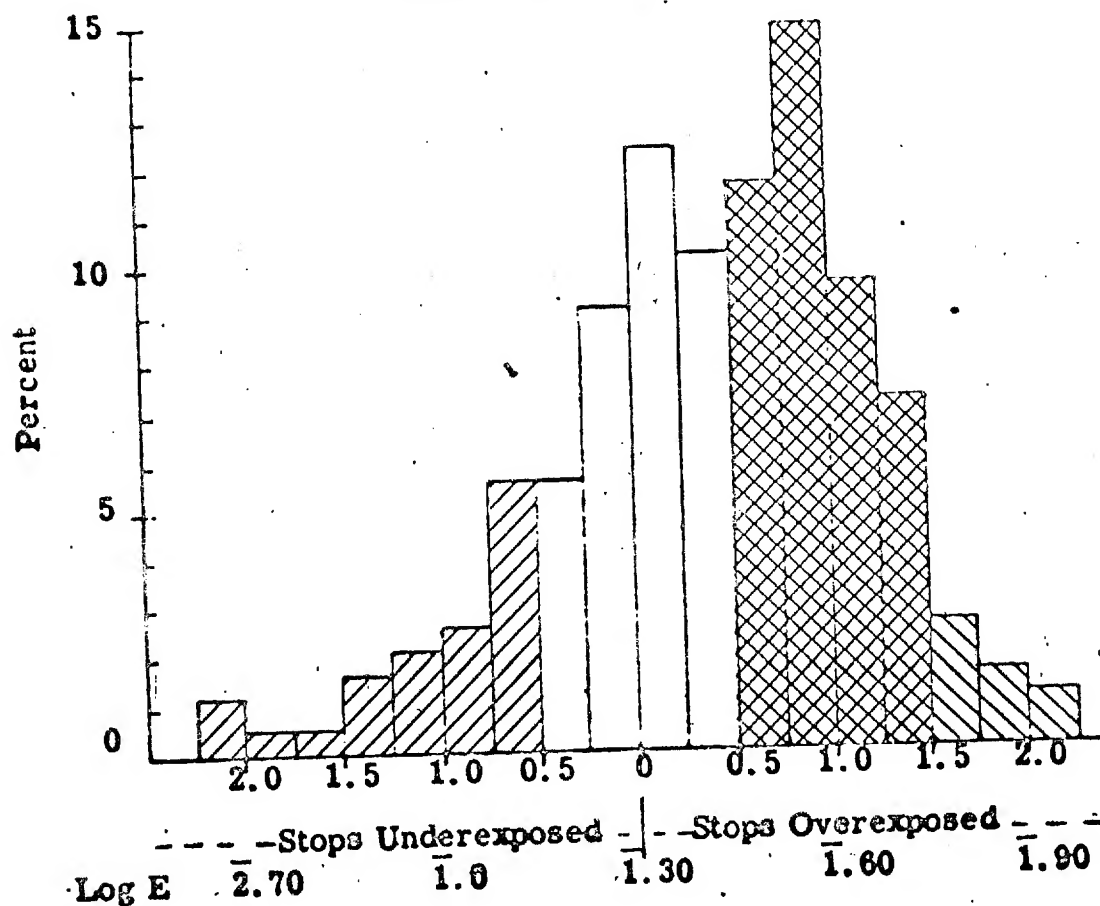
\*\* - Axis of polarization measured from the long dimension of the filter.

\*\*\* - This filter is for use with color films.

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Attachment 2 Fig. 1

Percentage Frequency  
Distribution of Recommended  
Exposure Changes for  
1000-Series Acquisitions



- Within 1/2 Stop of Desired Exposure
- Overexposed but within System Capability to Compensate
- Overexposed Beyond System Capability to Compensate
- Underexposed Beyond System Capability to Compensate

**TOP SECRET**

More Than  
.5 Stops  
Under

38% in Cloud  
Shadow

25% at a Solar  
Altitude of  
20° or Below

More Than  
.5 Stops  
Over

30.5% Snow or Snow  
Surround

29.1% Cloud Cover or  
Partial Cloud  
Cover

11.2% At Solar Altitude  
of 60° or Above

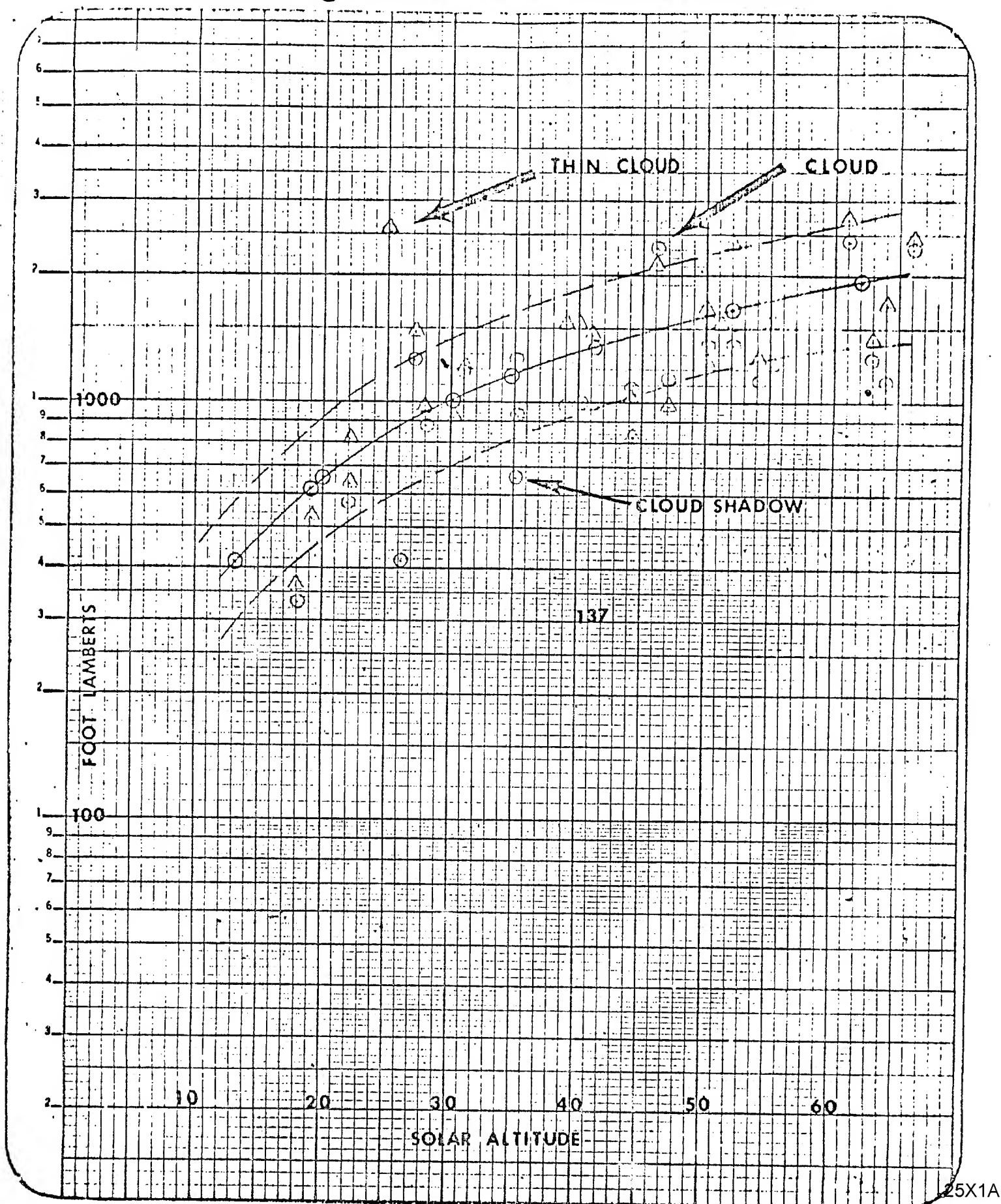
HANDLE VIA  
CONTROL SYSTEM ONLY

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7012/68  
Attach 2 Fig 2



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25X1A

Approved For Release 2002/05/02 : CIA-RDP78B04767A000300050005-7

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Approved For Release 2002/05/02 : CIA-RDP78B04767A000300050005-7

SECRET/SPECIAL HANDLING

CURRENT PLANS FOR SYSTEMS CAPABILITY EFFORT

11 JANUARY 1968

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## SECRET/SPECIAL HANDLING

<u>FLIGHT</u>	<u>TEST</u>	<u>DESCRIPTION</u>
CR-1	FILTER EXPOSURE	21, 23A, 25 1 1/3 STOP RANGE; DENSITY COMPARISON
CR-2	BISPECTRAL POLARIZER SO-230	W/25 + SF-05 POLOCOAT, 20° ANGLE "FASTER" 3404 TYPE FILM
CR-3	BISPECTRAL WIDE BAND FILTER SO-380	W/25 + SF-05, OPERATIONAL WRATTEN NO. 12 ULTRATHIN BASE FILM
CR-4	SO-180 NIGHT	COLOR INFRARED FILM SO-340 (TRI-X TYPE EMULSION)

TENTATIVE

CR-5	KODACHROME II	HIGH RESOLUTION COLOR FILM
CR-6(CR-7)	POLARIZER THROUGH FOCUS	(D) PRINTER, PROPER AZIMUTH STEPPED GLASS FILTER

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## SECRET/SPECIAL HANDLING

### 1. FILTER EVALUATION

- BASIC OBJECTIVE: SEE WHAT DIFFERENCES OCCUR IN OPERATIONAL PHOTOGRAPHY WITH THE WRATTEN NO. 12, 21, 23A, AND 25 FILTERS
  - A. SUBJECTIVE EVALUATION
  - B. MTF ANALYSIS OF IMAGE QUALITY
  - C. TRADEOFF BETWEEN EXPOSURE TIME AND ATMOSPHERICS

### 2. EXPOSURE ANALYSIS

- BASIC OBJECTIVE: DETERMINE:
  - 1. IF SLIT CHANGED PROPERLY
  - 2. IF WE EXPOSE PROPERLY
  - 3. COMPARISON BETWEEN TARGETS AND TERRAIN DENSITIES
- A. SUBJECTIVE EVALUATION
- B. DENSITY VERSUS FREQUENCY ANALYSIS
- C. EXPOSURE ANALYSIS WITH HIGH PRIORITY TARGETS
- D. COMPARISON OF TARGETS AND TERRAIN DENSITIES

### 3. BISPECTRAL PHOTOGRAPHY

- BASIC OBJECTIVE: TEST THE OPERATIONAL FEASIBILITY OF OBTAINING BISPECTRAL PHOTOGRAPHY FROM MISSION PHOTOGRAPHY
  - A. SUBJECTIVE ANALYSIS OF TARGETS WITH RESPECT TO TONAL DIFFERENCES, (NPIC)
  - B. OBTAIN GOOD BISPECTRAL PRINTS
  - C. IMAGE QUALITY ANALYSIS OF SF-05 IMAGERY
  - D. TEST BEST METHOD OF OBTAINING BISPECTRAL IMAGES

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### 4. POLARIZER FILTER

- BASIC OBJECTIVE: DETERMINE THE EFFECTIVENESS OF A POLARIZER AS A HAZE-CUTTING FILTER
  - A. IMAGE QUALITY ANALYSIS
  - B. ATMOSPHERIC EFFECTS AS A FUNCTION OF SOLAR ALTITUDE AND AZIMUTH
  - C. DETERMINE EFFECTIVE FILTER FACTOR
  - D. SUBJECTIVE ANALYSIS OF TONAL RENDITION

### 5. SO-230

- BASIC OBJECTIVE: COMPARE SO-230 WITH 3404 IN AN OPERATIONAL MISSION
  - A. FILM SENSITOMETRIC CHARACTERISTICS (FOG, GAMMA, SPEED, FILTER FACTORS)
  - B. FILM IMAGE QUALITY ANALYSIS (MTF, RESOLUTION)
  - C. SUBJECTIVE EVALUATION OF FLIGHT FILM
  - D. SYSTEM RESOLUTION
  - E. TONE REPRODUCTION COMPARISON

### 6. SO-380

- BASIC OBJECTIVE: TEST SO-380 IN THE SYSTEM
  - A. FILM SENSITOMETRIC CHARACTERISTICS (FOG, GAMMA, SPEED, FILTER FACTORS)
  - B. FILM IMAGE QUALITY ANALYSIS (MTF, RESOLUTION)
  - C. SUBJECTIVE EVALUATION OF FLIGHT FILM
  - D. SYSTEM RESOLUTION (MTF/AIM)
  - E. LAB CHAMBER TESTS
  - F. LIMITED DIMENSIONAL STABILITY ANALYSIS

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7. SO-180

- BASIC OBJECTIVE: OBTAIN MISSION PHOTOGRAPHY WITH CAMOUFLAGE COLOR FILM
  - A. SUBJECTIVE ANALYSIS OF INFORMATION CONTENT
  - B. TONE REPRODUCTION ANALYSIS
  - C. RELATIVE IMAGE QUALITY (RESOLUTION, MICROPHOTOGRAPHS)

8. NIGHT PHOTOGRAPHY

- BASIC OBJECTIVE: DETERMINE IF ACTIVITY CAN BE DETECTED AT NIGHT
  - A. SUBJECTIVE ANALYSIS
  - B. STATIC ANALYSIS
  - C. THEORETICAL ANALYSIS OF NIGHT DETECTION CAPABILITY

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CONTROL NO.  

7012/68 cy-6

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31 JAN 1968

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